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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): **4015-5177/P18409-US1**

I hereby certify that this correspondence is being electronically filed.

Date: **December 23, 2008**

Signature: Kathleen Koppen

Typed or printed name: **KATHLEEN KOPPEN**

Application Number:	Filed:
10/811,699	**March 29, 2004**

First Named Inventor: **Bottomley**

Art Unit:	Examiner:
2618	**NAHN T. LE**

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor

Jennifer K. Stewart

Signature

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

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Registration Number if acting under 37 CFR 1.34_____

December 23, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ form(s) is/are submitted.

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer,

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Gregory Bottomley

Serial No.: **10/811,699**
Filed: March 29, 2004

For: **Impairment Correlation Estimation in a Spread Spectrum System**

Docket No: **4015-5177**

PATENT PENDING

Examiner: Nahn T. Le

Group Art Unit: 2618

Confirmation No.: 1345

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CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

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23 December 2008 — Date

Kathleen Koppen

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ARGUMENTS FOR PRE APPEAL BRIEF REQUEST FOR REVIEW

In response to the Office Action mailed 30 September 2008, the applicants submit the following remarks in support of the Pre-Appeal Brief being filed concurrently with a Notice of Appeal. If the accompanying payment does not cover all fees, please charge any remaining fees to Deposit Account No. 18-1167.

The claimed invention is directed to a method and apparatus for estimating an impairment correlation matrix in a spread spectrum wireless receiver. The basic concept is to generate first and second impairment correlation matrices and to determine a final impairment correlation matrix by either selecting one of the first and second impairment correlation matrices or combining the first and second impairment correlation matrices. More particularly, an impairment correlation estimator estimates first and second impairment correlation matrices

based on despread symbols and then derives a final impairment correlation matrix based on the first and second impairment correlation matrices. In one exemplary embodiment, the impairment correlation estimator selects one of the first and second impairment correlation matrices. In other embodiments, the impairment correlation estimator combines the first and second impairment correlation matrices to generate the final impairment correlation matrix.

Independent claim 1 is directed to a method of estimating an impairment correlation matrix in a spread spectrum receiver, while independent claims 21 and 57 are directed to an apparatus configured to implement the method of claim 1. Each independent claim is limited to estimating first and second impairment correlation matrices based on despread symbols received over multiple paths of a multi-path channel, and deriving a final impairment correlation matrix based on the first and second estimated impairment correlations matrices.

Claims 1, 21, and 57 stand rejected under §103 as obvious over Fitton (US2004/0028013) in view of Smee (US6990137) and Shalvi (US6553074). The cited references, alone or in combination, fail to teach or suggest deriving a final impairment correlation matrix from first and second impairment correlation matrices, which are each estimated based on despread symbols.

Fitton describes a spread spectrum wireless receiver that comprises interference suppression circuitry and a RAKE receiver having a plurality of RAKE fingers. The interference suppression circuitry estimates interference present in a received signal, respreads the interference estimate, and subtracts the interference estimate from the received signal to generate interference suppressed signals. Subsequently, each RAKE finger processes the interference suppressed signals according to conventional RAKE receiver means. See Figure 5 and ¶s [0088] – [0094]. Fitton also teaches that the interference estimator may use RAKE elements, such as RAKE fingers and a RAKE combiner) to generate a combined interference estimate based on the received signal.

It is important to note that whether part of the overall receiver or the interference estimator or both, the RAKE operations implemented by Fitton do not generate any type of correlations based on despread symbols. Instead, each RAKE finger cross-correlates data and pilot codes to generate despread symbols for one path of a multi-path channel. The RAKE combiner combines the despread symbols from each path to generate a combined output signal (i.e., an interference estimate for the interference estimator and an interference suppressed signal for the overall receiver). Thus, Fitton's correlations are not derived from despread symbols, but are instead used to generate despread symbols.

Smee describes a method and apparatus for computing combining weights for signals received over multiple antennas. More particularly, Smee describes a process that computes a cross-correlation between signals received over multiple antennas. From these cross-correlations, a noise correlation matrix is computed. Smee uses the noise correlation matrix to compute combining weights used to weight the signals received at the multiple antennas. See Smee, col. 22, lines 23-65. Clearly, Smee describes a distinct correlation process that produces a correlation matrix that fundamentally differs from any quantity or signal resulting from the correlation operations disclosed in Fitton.

Shalvi describes a method and apparatus for combating logarithmic quantization and Robbed Bit Signaling (RBS) impairments typical to a Pulse-Code Modulation (PCM) telephone line. An impairment identifier identifies whether or not logarithmically quantized PCM characters are corrupted by RBS impairments. An interference estimator estimates the RBS impairment based on the results output by the impairment identifier.

There is no legally sufficient basis for combining Smee and/or Shalvi with Fitton. First, the RBS impairments described by Shalvi are particular to landline phone systems, and therefore, are irrelevant to the wireless multi-path systems described by Fitton and Smee. Thus, it is unclear how Shalvi could or would be combined with Fitton and/or Smee or how the

resulting combination would operate. Further, because Smee's correlation process generates a correlation matrix that fundamentally differs from any quantity or signal resulting from the correlation operations disclosed in Fitton, it is unclear how Fitton's receiver could or would be modified to incorporate Smee's correlation matrix. Lastly, the applicants note that the examiner's proffered motivations are conclusory (see pp. 2 – 3 of the OA mailed 30 September 2008), and not based on any factual evidence of record. For any or all of these reasons, there is no legally sufficient reason to combine Smee and/or Shalvi with Fitton.

Further, whether taken alone or in combination, Fitton, Smee, and Shalvi fail to teach or suggest estimating multiple impairment correlation matrices based on despread symbols. Instead, Fitton uses signal correlations to generate despread symbols, Smee uses cross-correlations between multi-path signals to determine noise correlations, and Shalvi uses an input signal to estimate RBS impairments. Because none of the references determine multiple different impairment correlation matrices based on despread symbols, the cited art, whether taken alone or in combination, fails to teach each limitation of independent claims 1, 21, and 57. For at least these reasons independent claims 1, 21, and 57, and all claims depending therefrom, are patentably distinct from the cited art.

The applicants also note that the arguments presented herein with respect to Fitton were presented to the USPTO numerous times, i.e., in the responses dated 6 March 2007, 1 February 2008, and 10 June 2008. Further, the arguments presented herein with respect to Smee, and with respect to Fitton combined with Smee were also presented in at least the response dated 10 June 2008. Instead of addressing the points brought up by the applicants, the examiner simply combined Fitton and Smee with a new reference as part of a new rejection. By not addressing the applicants' remarks with respect to Fitton and Smee, the examiner has failed to establish a clear issue with the applicants, as required by MPEP §706.07.

For at least the reasons presented above, independent claims 1, 21, and 57, and all claims depending therefrom, are patentably distinct from the cited art. The applicant therefore requests that the Panel overturn all rejections and issue a Notice of Allowance.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.

Dated: 23 December 2008

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